The Developments in Turkish Auto Industry And Factors That Affect Demand

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THE DEVELOPMENTS IN TURKISH AUTO INDUSTRY AND FACTORS THAT AFFECT DEMAND

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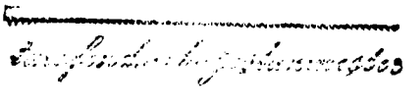

I certify that I have read this thesis and in my opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Business Administration.

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ABSTRACT

THE DEVELOPMENTS IN TURKISH AUTO INDUSTRY AND FACTORS THAT AFFECT DEMAND

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Master of Business Administration

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Auto Industry is very important for nations and governments as it plays a key role when determining the competitive power of a country. The industry provides employment and increase GNP as well as provide governments tax income. In this study, the developments in Turkish Auto Industry, its competition power and productivity figures are summarized. An important problem of the industry which is producing behind economies of scale is discussed and the factors that affect the domestic demand for autos are presented. The export and import trends in the sector are briefly examined. The effects of the Customs Union Agreement and the probable effects of the New Duty - Free second hand auto import decision of the government are presented. The government decisions play the most important role for the future of Turkish Auto Industry.

Key Words: Turkish Auto Industry, producing behind economies of scale, demand factors, government decisions.

ÖZ

TÜRK OTOMOBİL ENDÜSTRİSİNDEKİ GELİŞMELER VE TALEBİ ETKİLEYEN FAKTÖRLER

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Otomobil endüstrisi bir ülkenin rekabet gücünün ölçülmesinde önemli bir role sahip oluğu için hem milletler hem de devletler için çok önemlidir. Endüstri bir istihdam kaynağı olması ve GSMH' yi yükseltmesinin yanısıra devlete vergi geliri de sağlamaktadır. Bu tezde Türk Otomobil Endüstrisindeki gelişmeler, endüstrinin rekabet gücü ve verimliliği özetlenmiştir. Endüstrinin önemli poblemi olan ekonomik ölçeklerde üretememe ve yerli talebe etki eden faktörler ele alınmştır. Sektördeki ihracat ve ithalat trendlerinden kısaca bahsedilmiştir. Gümrük Birliği Anlaşmasının etkileri ve devletin yeni bedelsiz ikinci el araç ithalat kararının olası etkileri sunulmuştur. Devlet kararları Türk Otomobil Endüstrisinin geleceği için en önemli rolü oynamaktadır.

Anahtar Kelimeler: Türk Otomobil Endüstrisi, ekonomik ölçeklerin gerisinde üretme, talep faktörleri, devlet kararları.

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CHAPTER 1

INTRODUCTION

1.1 Importance of Auto Industry:

Auto industry is the world's largest manufacturing activity with nearly 50 million new vehicles produced every year. The industry connects steel, iron, rubber, glass, textiles, plastics, machine tools, electronics and various other industrial products.

Auto industry, as of inputs used in manufacturing and of outputs at the final stage, is considered as a sign of industrial development both in developing countries as well as in more developed ones. Auto industry was the leading sector in the United States in the inter war years, it played the same role in Western Europe in the fifties and sixties and it became the crucial barometer of economic progress in a number of countries in the sixties and seventies (Jenkins, 1987).

The industry provides benefits to nations' economies; by providing employment, increasing production and GNP. It also increases governments' revenue by taxes. As the industry is a leading source of employment and investment, it is protected from competition even in developed countries. The government intervention and the relationship between government and the industry is critically important. A very

striking example to the affect of government intervention is the Brazilian auto industry. According to the researchers, the success of Brazilian industry at developing a motor vehicle industry is not the product of mere market forces but, to the contrary, the result of direct government intervention (Prud'home , 1983).

In every auto producing nation, governments do several things to influence their companies competitiveness. These interventions may be either in the macro or micro level. Macro economic policies are not supposed to discriminate among industries but politically prominent industries such as autos are hurt or benefited more than others. Governments around the world intervene in the auto industry at a macro level.

Auto industry is also considered as an important source of technological leadership. In just a few years, the auto industry has undergone a dramatic transformation, from a stodgy mature smokestack industry to a cutting-edge, high-tech industry where technological innovation is creating not only the car of the future but also the factory of the future (Dyer , 1987).

As a result of these reasons - employment, investment, growth, and technological leadership- the auto industry is considered to play a central role in both global economics and politics.

1.2 Scope and Objective

In this study, the history, development, factors that affected development, three technological stages of the world auto industry - craft production, mass production and lean production will be briefly discussed in the second chapter. World auto manufacturing today will also be given in the second chapter.

This will be followed by an outlook to Turkish economy and industry in the third chapter. History and development and cooperation of allied industry are also in the third chapter. Some figures about employment, productivity and competition power of Turkish Auto Industry are given. The lack of stable demand which affects the industry's development negatively and the factors that affect this demand also appear in this chapter. Government policies are the key determinants for the auto industry, the effects of the customs union agreement and new decision about duty free second-hand auto imports are tried to be discussed together with export and import figures of Turkish Auto Industry in the third chapter. A regression analysis is also carried out in the third in order to test the determinants of the demand for autos. The result of the regression is discussed in this chapter and the variables and outputs are given inthe appendix.

The fourth chapter is devoted for the conclusion. In this chapter some recommendations especially for the government are suggested for the well being of the auto industry in the future.

The first objective of this study is to examine the factors that affect the development of Turkish Auto Industry. The government decisions always play the main role for auto industries both in Turkey and in the world. The important determinants of the demand for cars in Turkish Auto Industry are also examined .

The second objective is to address the reasons for the dramatic fall in the demand in Turkish Auto Industry. Due to this dramatic fall the auto industry has been affected in a negative way although it should have been supported and strengthened while entering to customs union with EC. The negative effects of the new duty-free second hand auto imports for both Turkish Economy and Turkish Auto Industry are also predicted.

At the end some recommendations will be presented which are mostly for the concern of the Turkish Government as it plays the key role in development of the auto industry. The government should take these recommendations into account as the auto industry is one of the most important industries by providing employment and increasing production and GNP.

CHAPTER 2

WORLD AUTO INDUSTRY

2.1 History and Development

The first steam-engine car was made in 1769 by Nicholas Joseph CUGNOT in Europe, then in 1885 two researchers Karl BENZ and Gottlieb DAIMLER discovered the first internal combustion engine, the power unit which lies at the heart of the modern automobile and commercial vehicles. Its incorporation into the automobile followed in Western Europe, but production levels remained limited. The roads were primitive, automobile was seen as a luxury product and was manufactured in small batches for discerning users. By 1906, two decades after the first automobile had appeared, a total of only 50,000 vehicles produced per year throughout the Western Europe (Hoffman,1988).

World auto industry can be examined in three basic phases between the years 1910 and 1990. The first fundamental change occurred during 1910 when Ford introduced Model T which is mass produced. Before mass production, autos produced in small batches by small scaled producers. This mass production brought an oligopolistic structure in the world auto industry in the benefit of American producers during

1920's. During 1920 more than 2 million autos were produced in America by mass production.

In this period, though United States industry was quite dominant, the primitive technology of shipping offered a form of natural protection to producers of West Europe. This was complemented by a series of government policies with an adoption of high protective tariffs. This not only enabled Western Europeans to establish their auto industry but also forced the United States producers to enter the European market by establishing plants abroad. Whilst inducing this transfer of United States manufacturing technology and protecting domestic industry, the small size of most Western European markets meant that few of their producers were able to reap the growth of economies of scale, and by outbreak of the second World War, the technological dominance of the United States producers remained (Hoffman,1988) .

During the World War II production of almost all industries except the defense industry is ceased. After World War II, the development of the Common Market allowed the continental producers to reap continent-wide-scale economies. Consequently, the second fundamental change occurred and during the period of 1950 to 1960 a number of Western European auto companies expanded. During this time they became competitive producers, but unlike their United States counterparts whose product technology had degenerated into a standardized series of product differentiating facelifts, the Western European firms maintained a high rate of product innovation (Hoffman,1988).

The third phase begins, after the development of low cost, demand driven production organization of Japanese auto industry, during 1970's. This development was unexpected, because during the first years after World War II, the capacity of Japan to have an auto industry was in doubt. During 1960's the great American and European auto makers regarded their rivals in Japan (if they regarded them at all) as insignificant producers of cheap cars that seemed unlikely to capture more than a marginal share of the world auto market. Arising from the small and fragmented nature of the Japanese markets in the 1950's and 1960's- which contrasted sharply with the mass market available in the United States in the early twentieth century- the Japanese automobile firms were forced to adopt a more flexible attitude to automobile production (Hoffman,1988). As a result instead of taking the advantage of a supply-driven system in which the firm could concentrate on maximizing the flow of similar automobiles out of factory, the basis of production is changed to a demand-driven one. Initially this was forced on the producers as a way of coping with an unstable pattern of consumption. However, as the system of production became fine-tuned to cope with the variation in the output, this became a competitive edge for the Japanese car producers. Following this, the emphasis on competition has changed from price-competition to product-innovation.

By the early 1980's the Japanese producers had become world leaders in building high-quality cars at low cost. They have competitive standards that American and European auto producers are hard pressed to match. But as the Japanese producers gained market share, they encountered more and more political resistance. During this period, the American and European auto companies instead of learning from their Japanese

competitors, focused their energies on erecting trade barriers and other competitive impediments and by the mid-1980's the auto Mecca of the World is no longer Detroit, but Japan (Dyer,1987).

Consequently, the Japanese have shown that there is an important difference between working hard and working efficiently, and between work that is a bore and work that is a challenge (Jones,1989).

2.2 Factors that Affected Development of World Auto Industry

The American Auto Industry has passed cyclical ups and downs for decades. The industry was in place during 1930's, the Big Three- General Motors, Ford and Chrysler- dominated the domestic market.

Two revolutions led to the industry's concentration. The first was a revolution in production; Ford's discovery of how to build autos on massive scale. The second was a revolution in marketing, the General Motors strategy to cover the market nationwide with products appealing to different segments of the buying people (Dyer,1987).

The automotive market of 1920's became crowded with smaller automakers serving to local markets, but the number decreased from a 160 of 1920 to 23 in 1930.The small independent producers-Kaiser and Willys, Studebaker and Packard, Nash-Kelvinator and Hudson merged or left the business. GM's success on selling based on the fundamental change in the market. GM understood that as the better roads were built

and per capita income climbed, consumers were beginning to favor cars with additional features rather than durable and low priced Model T of Ford. In such a world, the biggest companies with nationwide dealer networks and advertising, enjoyed a substantial competitive advantage over their smaller rivals. So the scale economics and in production and marketing transformed the nature of competition in the industry. By the end of the 1920's GM, Ford and Chrysler dominated the market and the industry had become a big business.

The relationship between management and labor, on the one hand and between business and the government on the other are the key dimensions in auto industry. The first relationship determines a company's ability to organize and motivate employees to make cost efficient and quality products, and the second structures the incentives that prompt companies to invest and grow. Together, these relationships determine the setting or context in which companies compete in global industries (Batchelor,1994) .

Ford was the first major producer who moved outside United States with manufacturing operations in Canada in 1904. They used this plant to export throughout the British commonwealth; GM and Chrysler copied Ford in this respect. As it was cheaper to export parts than fully assembled cars to many countries, the American multinationals set up assembly plants around the world. Protectionism overseas gave way to this strategy. European governments put high tariffs on imported autos during World War I which led American producers to build and acquire plants in Europe. In Japan, however more extreme measures have been taken by government to abandon American branch assembly operations in the 1930's.

The American market was enormous in those years; the auto sales in the United States were higher than the rest of the World until 1960's. During 1955 about 80 % of all car registrations in the world were in North America. The per capita income was the highest and the roads were very sophisticated. The market was large and growing, between 1947 and 1967 the American auto producers averaged a return of 16.7 %. Imports, generally from Volkswagen and Renault remained 10 % of sales before coming of Japanese in the late 1960's.

The links between Washington and Detroit were many and varied. Over time, however a general pattern was clear, the federal government became increasingly involved in the affairs of the auto industry. This involvement ranges from procurement and trade policies and auto specific regulations to indirect measures such as macroeconomic policies, highway programs an energy policy (Dyer,1987).

In the early days, the producers were grateful for the federal support, however in 1960's the government began to intervene in industry affairs more actively by regulation of safety, emissions and fuel economy. The federal involvement in auto industry can be examined in three different stages; from the beginning to Depression the government supported the industry by a variety of direct and indirect measures. Second from the Depression to 1960's the government kept a watchful eye on the industry's behavior and during the third stage the government increased its involvement and became present in the affairs of the industry.

In the first stage, the government supported the industry in several ways; enormous fleet of sales made to the military, post office and other federal agencies with high profits. The auto industry's growth is encouraged by building new roads and putting heavy tariff on imported cars. Between World War I and 1950's foreign penetration was avoided by this high rate of taxes for the imported cars.

Federal management of the economy, which escalated in the Depression's aftermath, also affected the auto companies' behavior and performance. Macroeconomic tools-taxes, interest rates, trade policies- and laws regulating the nation's economic performance were not intended to help or hurt the auto industry more than any other. In practice, however, federal monetary, tax, trade and energy policies encouraged the auto companies' growth until inflation became a worry in the late 1970's. The government intervened more directly in the auto industry during World War II and several times since then by regulating prices and wages. In each period of wage and price controls, however, the automakers continued to earn ample returns (Dyer,1987).

During mid 1960's the federal intervention became qualitatively different. Before the government was antitrust enforcer, industrial relations mediator and macroeconomic policy maker; then another role was added; product regulator. The government became active and involved in everyday business decisions of the industry. This new government intervention occurred on a massive scale. In 1966, Congress passed the National Highway and Motor Vehicle Safety Act, in 1970 the Clean Air Act in 1975 the Energy Policy and Conservation Act. Out of these new federal policies came hundreds of specific regulations for the auto industry. Federal policy makers, few of

them with any expertise in automotive engineering, concerned themselves with the details and specifications of product policy, from seat belts to bumpers, from catalytic converters to exhaust systems, from engine specifications to material characteristics.

The arguments between political critics of the auto industry as a 'sacred cow' and managers who viewed it as ' the most important industry in the economic picture of the United States' were replayed in almost identical fashion during the national debates on regulation of air pollution and fuel efficiency in the 1970's (Dyer,1987) .

When we look at Europe auto industry, after World War II, the United Kingdom was the strongest and the second largest producer in the World. At that time United Kingdom was also the leading exporter of cars in the World but within a decade the British fall behind the Germans in total production. At present the British industry is the smallest among the major European producers ranking even below Spain in total production. Imports account for nearly 60% of sales in the home market. The foreign owned companies, Ford and Vauxhall have captured an increasing share from the industry. The lone British owned mass producer British Leyland survived with government funding during the past decade.

Between 1948 and 1952, the GNP rose 67 % and industrial production by 110 % in West Germany. During 1950's and 1960's GNP growth averaged 7.6 % per year which is the twice the other European countries. The exports increased from 8.5 % of 1950 to 15.9 % in 1960. The productivity improved by 7 % per year and unemployment and inflation fell to about 1 %. The auto industry played a key role in the West German success and production exceeded the prewar peak. Germany passed

the United Kingdom as Europe's largest auto producer in the mid 1950's and became the second after the United States. The rapid growth of the German market absorbed only part of the domestic output, from early 1950's exports to Europe and United States accounted for more than 50 % of total production.

As the motor industry developed into an oligopoly, competition among British producers never strongly developed. Government intervention didn't encourage the development of home market and consequently avoided the management's long term plans and investment decisions. As a result industrial relations in Britain was the most problematic in Europe with frequent work stoppages and low levels of quality and productivity. The shifting macroeconomic policies and conflicting political and social agendas of labor and conservative governments played a major role in the industry's decline.

The government intervention had two effects in the development of the auto industry. First one is that changing macroeconomic policies avoided the growth of the domestic market in Britain. Second, successive governments tended to use the auto industry as an instrument to achieve larger social goals. For example the government restricted demand in order to increase the use of nationalized railroads and public transportation. Auto industry was used as a testing ground for social and political reforms.

As recently as a decade ago West Germany was number one. Like the Japan of the early 1980's Germany boasted an extremely efficient and productive economy. Unemployment and inflation stood at insignificant levels, strikes and other forms of

employee unrest were rare. The German reputation for quality and engineering could not be reached.

In recent years the picture has not been so bright; the German auto industry is the strongest in Europe but its total world production fell from 15.6 % of 1970 to 12.9 % at the end of 1980's.The import penetration of German market by Japanese jumped from 21.1 % in 1977 to 27.2 % in 1988. At the end of 1980's Ford and GM added capacity in places like Spain and Austria and retired production in higher cost areas like Germany and Holland.

Volkswagen(VW) , the largest automaker in Germany and for many years the national economic miracle has passed several financial crisis in the past decade. VW was once the low cost producer but now is struggling to control cost, improve quality and reorganize manufacturing and marketing on a worldwide basis.

Japanese producers are the dominant players in today's global auto industry. By the early 1980's however the Japanese producers had become world leaders in building high quality cars at low costs. They have set competitive standards that the American and European auto companies are hard pressed to match. According to the Changing Alliances by Dyer, Japan expressed their institutional purposes, goals and performance with six key characteristics. These are;

-*Shared Authority and Responsibility*, labor and government recognize that with authority comes responsibility.

-*Shared Interests*, the primary interests of management, government and labor are interdependent.

-*Efficient, Effective, Economic Decision Making*.

-*Flexibility and Adaptability*, design mechanisms and agreements that permit quick adaptation to new circumstances.

-*Strategic Thinking*, management, government and labor should focus on the long term goals to achieve advantage over competitors.

-*Focus on the Company in the Global Market*, stress the competitive status of the company in the world not only in the nation (Dyer,1987).

These six characteristics of the Japanese system exhibits a dramatic contrast to the American system. In Japanese system the main idea is that, competitive advantage can be created through coalition building between management, labor and government.

As can be observed above, the government policies and interventions have played the main role during the development of the world auto industry. The governments who have not given the required attention and importance to their auto industries have lost the competition power and productivity in the industry which results in decreased competition power of the nation as a whole, like the United Kingdom example.

2.3 Stages in World Auto Industry

The world auto industry is older than a century and its development can be examined by dividing it into three main stages. These stages are Craft, Mass and Lean Production respectively.

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2.3.1 Craft Production

During 1894 Panhard et Levassor (P&L) was the first auto producer in the world. In those years P&L built about a few hundred cars per year. These cars were classically hand-made and the work was generally carried by experienced craftsmen. The founders of the company Panhard and Levassor talk with the customers, define the specifications of the auto demanded and order the necessary parts which are going to be assembled. The parts of the car were made by different individual small-scale workshops in Paris, then they were assembled into a car in the assembly saloon of P&L. The cars were never standard and none of them resemble each other, every car was a different product designed and produced for the demand of different customers.

Craft Production used simple but flexible tools and produce exactly what the consumer wants, but of course the costs were very high and these costs could not be lowered as the production quantities increase, consequently an average consumer could not afford to buy craft produced cars.

The general characteristics of the craft production are as follows:

-The labor is highly skilled in design, production and assembly, this skill is gained by an apprentice period and they become experienced craftsmen.

-The responsibility is highly diversified and the different parts and design of the car are made at different workshops. These workshops belong to different individuals and the coordination with the customers are carried out by an entrepreneur like Panhard and Levassor in P&L example.

-Simple, flexible, general purpose tools are used in order to process metal and wood.

-The production capacities are very low, at most a thousand cars per year, and about fifty of those are produced with the same design but no two cars is equal to each other as they are hand-made.

-The production costs are very high and as every car produced is a prototype, they are not safe and reliable.

The auto industry was transformed into mass production after World War I and P&L could not manage to achieve this change and went bankruptcy. But there exist a few craft producers in present, these serve to high level, rich customers which prefer to order their luxury cars directly to the producers. Aston Martin is an example of these craft producers, by producing less than 10 000 cars during the last seventy years. One car is produced per one day with highly skilled workers.

However these craft producers are forced to make mergers with big firms in order to carry out research and development for technology improvements, safety and environmental protection. They can not afford the high costs of research and development alone.

2.3.2 Mass Production

Mass Production, as everyone guesses, is not only an assembly line. In fact it is a production system in which the different simple parts can be fitted easily and the parts can be used interchangeably. This intechangeability can be achieved by using the same measuring technique for all the different parts throughout the whole manufacturing process. Also the tools are different from the all-purpose flexible tools of craft production.

The simplicity in assembling and interchangeability brings advantages to the mass producers and the necessity for the skilled workforce disappeared. As the task does not require expertise, the workers are also interchangeable. The time needed for assembling a car is also decreased by this production as the worker stands at the same point and assembles the part as the body arrives there, also the parts do not need smoothing before assembling (Table 1) . Consequently, this time decrease gives way to high productivity increases as the worker becomes accustomed to these simple and easy tasks by practicing many times .

TABLE 1 Time Differences in Assembling Between Craft and Mass Production

Time for Assembly (Minutes)	Craft Production	Mass Production
Motor	594	226
Dynamo	20	5
Axis	150	26.5

Source: Womack, J.P.,1990. The Machine That Changed The World, Rawson Associates.

Ford's application of the assembly line took the attention of other assembler, as the new technology did not require high investments. Ford had spent only 3 500 USD for the Highland Park assembly line which fastened the production to a great extend and decreased the cost of storage of the parts to be assembled. The decrease in the total costs were very high when compared to that initial investment. Also the costs decreased as the number of cars produced increase.

When Ford reached to produce 2 million cars per year, the total cost of the car decreased by 66 %. The target market was the average consumer and the cars were reliable and the maintenance of them were very easy so that every user can repair the car easily.

After World War I, Andre Citroen, Louis Renault, Giovanni Agnelli, Herbert Austin and William Morris visited the mass assembly plant in Highland Park and adapted the mass production techniques during 1930's in Dagenham and Köln plants in Europe. In the end of 1930's Volkswagen and Fiat started to make furious plans with mass production, but World War II finished civilian production.

Consequently by 1950's mass production could be spread to Europe and mass produced European cars started to compete with the American ones. So the big three American producers, Ford, GM and Chrysler lost the advantage of mass production as this type of production became usual worldwide.

If the auto industry of Japan could not have been established, the stable mass production in the United States and Europe would have continued towards infinity. The development of Japanese auto industry and application of lean production by them make the other nations to cooperate in this production system not to use competition power against Japanese rivals.

2.3.3 Lean Production

Lean production is spreading beyond auto industry and is going to change every industry ; choices for consumers, nature of work and fortune of companies. The most basic elements of lean production are total quality management, just in time and quality circles.

It is argued that there is an over capacity crisis in auto industry and the developed countries are very close to saturation (Orfeuil and Fournaiu,1983). Whereas this can be counter argued that , the world has an acute shortage of competitive lean-production capacity and a vast glut of uncompetitive mass production capacity (Womack,1990).

When we try to describe lean production with craft production and mass production, the other methods that humans use for production, we see that craft production uses highly skilled workers and flexible tools to produce exactly what the consumer wants in limited amounts . Whereas in mass production unskilled or semi skilled and expensive, single purpose machines are used to produce standardized products in large amounts. It is not a surprise that the craft produced goods are very expensive and mass produced ones have lower prices.

Lean production combines the advantages of craft and mass production . The workers are multi-skilled and automated machines are flexible which result in producing large volumes in enormous variety. Lean production is "lean" because it uses less of everything compared with mass production- half the human effort in the factory, half the manufacturing space, half the investment in tools, half the engineering hours to develop a new product. Also, it requires keeping for less than the needed inventory on site, results in many fewer defects, and produces a greater and ever growing variety of products (Womack,1990).

The goal of the lean production is different from the goals of the other two. Lean producers continually try to decrease costs, achieve zero defects, zero inventories and endless product variety. This dream has not yet been reached and endless search of excellence continues.

The developing countries like Turkey should adopt lean production in auto industry in order to gain competitive power in the international markets. The lean production adopted by TOYOTA-SA which started production in the end of year 1994.

2.4 World Auto Manufacturing Today

The supply and demand in the world auto industry are determined by the developed countries. In United States, the big three, Ford, GM and Chrysler produce about 95 % of all the production. These producers are no longer competing among themselves but there exist a world wide struggle for market shares with rivals in Europe and Japan. the top ten manufacturers ranked by 1990 worldwide production are given on Table 2 .

TABLE 2 Top Ten Automotive Manufacturer Companies , 1990.

	PASSENGER CARS	COMMERCIAL VEHICLES	TOTAL
GM - USA	5 208 221	1 936 335	7 144 556
FORD - USA	3 703 646	1 831 639	5 535 285
TOYOTA - JAPAN	3 799 921	871 387	4 671 308
NİSSAN - JAPAN	2 349 165	716 124	3 065 289
VW - GERMANY	2 873 869	139 063	3 012 932
PEUGEOT CITROEN - FRANCE	2 459 139	241 916	2 701 055
FIAT - ITALY	1 805 449	263 873	2 069 322
RENAULT - FRANCE	1 666 434	321 973	1 988 407
HONDA - JAPAN	1 764 775	160 322	1 925 097
CHRYSLER - USA	859 245	954 048	1 813 293

Source: World Motor Vehicle Data, 1992.

Although there exist a number of well-known specialty producers; Rolls Royce, Porsche, Mercedes, BMW and Ferrari and some scaled small producers; Seat, Saab and Volvo, the mass market remains quite small and there are six mass producers in European auto market, two of them are multinationals; Ford and GM and four national champions; Fiat, Volkswagen, Renault and Peugeot. These are all bunched together, with each 11 to 12 % of the market. There is excess capacity but it is very difficult to close a plant and to lay workers off in Europe.

The same troubles of the American auto producers; future of low growth, intensified global rivalry and the need of enormous capital investment are also present for the European auto producers.

In Japan, many small producers have cooperated with Toyota and Nissan which supply 59 % of the Japanese production. Parallel to this centralization, there is a tendency of common technology, marketing and production. General Motors and Isuzu, Chrysler and Mitsubishi are some examples. The government strives for good relations with auto makers and government officials and business leaders in Japan frequently consult about major decisions, events and trends before policies are formed. In short, the Japanese enterprise system is designed to enhance corporate competitive performance.

The automakers have a central role in the overall economic performance of Japan. The eleven vehicle assemblers provide, directly and indirectly to one out of ten jobs in the country. In 1980, Japanese auto industry surpassed the United States as the world's leader in the production of motor vehicles by producing more than eleven million cars,

trucks and busses. Around the world, Japanese auto producers are recognized as the industry leaders in both cost and quality. The Japanese can assemble, ship and land in America a subcompact car for 1 500 USD less than the American manufacturers to build the same car in US. For quality, the Japanese products generally outperformed all competitors, according to several industry ratings. In a survey, Japanese cars outperformed American and European products in dependability, problem-free delivery, fuel economy and value for the money.

The South Korean Auto Industry has displayed considerable developments during the last decade. This development has been achieved by using mainly the national resources, especially Hyundai has used minor foreign investment and gained competition power in the international markets. The Korean auto industry is the only example among the newly developing countries, that has used minor foreign investment. During 1990's there are five automotive producers in South Korea, among the five Hyundai, Daewoo and Kia are producing passenger cars. Hyundai has made the management itself but technical support is provided by Mitsubishi, however Daewoo has a 50 % GM share. In the year 1990, these three Korean producers have produced 986 751 passenger cars and taken place in the top ten world producers (Table 3). More than 65 % of this production has been exported.

The United States, United Kingdom, West Germany and Japan provide a range of contrast in development, structure and performance. In the past, Japan has risen from minor producers to the World's largest auto producing nation by setting global standards in cost and quality. The story of the British auto industry illustrates the opposite example. During 1950's, United Kingdom had the second largest auto

industry in the world, after United States, but today it is the weakest in Europe, ranking below the production of Spain. West Germany and United States are the cases in the middle. The 1990 passenger car production is given on Table 3 .

Before the late 1970's, relations between labor and management in the British auto industry were the most acrimonious and counter-productive in Europe. Frequent layoffs and strikes, low productivity, high manning levels, restrictive work practices and angry disputes over the introduction of the new machinery consistently plagued the automakers. Between 1969 and 1977, the British auto industry recorded more than ten times the national average for lost working days. Between 1955 and 1976, productivity in the British auto industry measured by 'equivalent' cars produced by employee per year increased from 4.1 to 5.5 . At first sight, this increase does not seem bad, but over the same years output per worker increased from 3.9 to 7.9 cars in West Germany and from 19.8 to 26.1 cars in the United States (Dyer,1987).

TABLE 3 Top Ten Passenger Car Producer Countries , 1990.

COUNTRY	PRODUCTION	COUNTRY	PRODUCTION
JAPAN	9 947 972	SPAIN	1 679 301
UNITED STATES	6 077 449	UNITEDKINGDOM	1 295 611
GERMANY	4 660 657	U.S.S.R	1 259 000
FRANCE	3 294 815	CANADA	1 074 417
ITALY	1 874 672	SOUTH KOREA	986 751

Source: World Motor Vehicle Data, 1992.

In Western Europe, the producers reacted to international competition by forming groups. The purchase of Audi by Volkswagen in Germany, the merger of Peugeot, Citroen and Talbot in France and the cooperation of Fiat with Ford in Italy are some examples. In this period the plants became more sophisticated and new scale economies are tried to be searched.

There are also important changes in the structure and features of the automobile. Many mechanical parts have left their places for electronic parts and the tendency to use computers in cars have increased. Today, robots are used in manufacturing and computer aided design (CAD) is used for design in leading auto producing countries. These applications also provide improved quality and increased number of models on the same production line. Design is one of the most important features of the autos as 70 % of the total costs result from design, research and development.

The auto industry is experiencing radical changes in technology, production and marketing during the last years. These give the governments considerable responsibilities, as by the legislation they affect the auto industry both in domestic and international scale to a great extend.

CHAPTER 3

TURKISH AUTO INDUSTRY

3.1 An Outlook to Turkish Economy and Industry

Since 1980, Turkey has been engaged upon a radical transformation of its economy, with the adoption of policies designed to take the country away from its traditional closed command status towards that of a truly open economy .

Significant progress in the structural re-adjustment of the economy has been made during the past decade and the rapid development of the Turkish economy has resulted in an increase in the demand for transportation which increased road transportation and demand for autos. However, present levels of high inflation, large budget deficits, and a variety of investment and production problems are now the official policy makers' main concerns.

An important development in Turkey's foreign economic relations in recent years is the big increase in foreign capital investment permits issued. As a result, there was a significant rise in the number of foreign investors and also in the number of companies which invested foreign capital.

It may sound strange to evaluate the industrialization as the most important topic of the forthcoming ten years, but in fact this is closely related to the system, mechanism, mentality and behavior of economy. In Western democracies, competition and supply-demand-price trio, which are the main constituents of free market model, always develop together with industrialization. Besides, industrialization creates an environment for modern entrepreneurship, management style, financial models and stock markets (Yıldız,1992).

Countries that are already industrialized or in the process of industrialization have established their automotive industries on the belief that this industry is improving and enables the whole economy to improve. Industrialization will be developed under the conditions where macro economic policies can create a stable environment. The first industry that is mostly affected by macro economic policies is the auto industry. As an auto represents a consumer's second largest lifetime purchase, macro economic policies have immediate effect on the automotive industry. Macro economic policies are not specifically aimed to discriminate among industries but politically prominent industries - like auto industry - are affected more than others.

3.2 History and Development of Turkish Auto Industry

The history of Turkish Auto Industry is shorter compared to World Auto Industry. After World War II, during 1950's Turkey started to develop fastly and gave precedence to highway transportation. During that time the demand was met by

imports. However, the import of automobiles and other means of transportation caused the foreign exchange reserves to decrease which led to the assembly industry of truck, jeep and tractor by importing parts.

Automotive industry gained significance in Turkish economy after 1960's when industry changed from assembly to production. During the First Five Year Development Plan period, 1963-1967, the automotive industry's push power in the industrialization process was set as the goal and ''Assembly Industry Regulation'' became effective in 1964. This regulation targeted a domestic production between 50-70 % to be achieved by 1969 (Aksoy,1990).

The car ''ANADOL'' was assembled in 1966 by OTOSAN from a fiberglass body and a Cortina motor. During year 1967 , as GNP per person increases the demand for automobile increased sharply. The estimates of the demand was only 8,000, but it occurred 21,000, 250 % higher than the estimates. This demand was met by imports which reduced foreign exchange reserves. Consequently the Second Five Year Development Plan, comprising the period 1968-1972, included the production of automobiles in Turkey. By this way the allied industry for automobiles will also develop; in order to guarantee this development, the percentage of domestically produced parts in an automobile are forced to increase by the government.

In 1971, the number of auto producers increased to three with the addition of TOFAŞ and OYAK-RENAULT. The industry had become the second largest industrial employer after textiles.

The Third Five Year Development Plan, comprising the period 1973-1977, targeted to meet the whole demand by domestic production and it was also stated that allied industry firms will receive certain incentives if they export their products. In this period the auto production and auto stock have shown considerable developments.

During this period, export has been mentioned for the first time. Projects, for increasing the capacities of OYAK-RENAULT to 35 000 autos per year and TOFAŞ to 30 000 autos per year , as well as to increase the domestically produced parts to 85 % by the mid of the third planned period have stated. It was also stated that both of the producers have to export at least 5 % of their production after they increase their capacity (Aksoy,1990).

By the end of 1974 due to rapidly increasing oil prices, the government has decided to stop the subsidy for the auto industry. Automotive Industry generally exhibited a development trend until the year 1976. But the political instability and economic crisis had adversely affected the auto industry which is very sensitive to changes in economic conditions. In this period, Turkish economy suffered from the oil crisis and foreign exchange bottlenecks which resulted in inflation rates that exceeded 100 %.

The plan to increase export of cars during the fourth five year development plan period could not have been realized as the producers produce far below the scale economies. The automobile production shown an upward trend until 1976; but after that year until 1982, entered into a downward trend due to political instability, increasing costs,

foreign exchange shortages and energy crisis. The production increased after 1982 continuously.

During all of the Five Year Plans the main goal was to improve the allied industry and to develop integrated firms in the main industry. Consequently increasing the proportion of domestically produced parts have received concern without paying attention to the product's quality and price. As a result this proportion is increased to 90 % on the expense of loosing international standards and quality. Although the development of the allied industry was supported, no attempt was made to enable the main industry to operate in economies of scale.

The Fifth Five Year Development Plan comprising the period 1984-1988 aimed at restructuring the auto industry with allied industry to enable the domestic firms to open to foreign competition. However the production growth rate became 3 % and the planned structural change was not realized. The firms were still far from competing in international markets and producing in economies of scale.

In Turkey, until 1985 there were only slight model changes in the three types of autos which were Anadol, Renault 12 and Murat 131. In 1985 OTOSAN has switched from Anadol to Taunus and Renault has added Renault 9 to its production line. Then in 1990, for the first time during 20 years of auto production, products of modern technology and large cylinder capacity automobiles are started to being produced in Turkey. Some examples are Opel Vectra, Renault 21 and Fiat Tempra. In year 1990, General Motors started production of autos in Turkey and took a share of 1 % by 1,156 passenger cars . The number of producers increased to four.

In year 1993 OTOSAN gave up producing Taunus and switched to Escort. Renault 19 was introduced to Turkish consumer by OYAK-RENAULT in 1994. Same year GM started producing Opel Astras in Turkey. The economical and technologically advanced, small passenger car Uno was produced for the first time in 1994 by TOFAŞ. This car was preferred by Turkish consumers and gained a market share of 5.5 % by selling 12,412 units in 1995. TOYOTA-SA produced Corolla 1.3 and 1.6 models in 1995. The quantities sold are 5,084 and 16,374 respectively. By the end of 1995 there were about 38 different type and model passenger cars being produced in Turkey.

3.3 Cooperation of Turkish Auto Allied Industry with Turkish Auto Industry

One of the most important characteristics of the auto industry is that, it can easily affect many other sectors either in a positive or a negative way. Auto industry plays a key role for the whole economy and the manufacturing industry. As an auto is made from more than 20,000 different parts and the inputs is supplied from many different industries, the developments in the auto industry directly result in developments in tire, petrochemicals, glass, plastic, rubber, iron-steel, metals other than iron-steel, electrical engines, electronics, optics, control and many other industries.

Generally the auto allied industry produces products that are not produced by the main producers, these products may either be end-product or not. The allied industry not only provides parts for the main producers but also supplies spare parts for the market. As most of the producers use the parts that are produced by the allied industry, there

exist many firms in the allied industry. These firms can be classified into two types according to their size and functions.

The organized big allied industry firms generally work together with the foreign partners for license and technical support and sell about 80 % of their products directly to the main industry firms. They produce at large quantities and have the ability to export. The small unorganized firms are the ones in which the owner is a skilled workman supervising the production activity and lack a proper quality control department. These smaller firms mainly supply for the spare parts market.

The main problems of the allied industry in Turkey is the low number of the organized large firms which produce high quality products and the low capacity utilization ratios which increase directly the unit cost of production. The main reason for the low rate of capacity utilization ratios is the low demand from the domestic market for the products of the main industry. Consequently the stocks in the allied industry increased sharply.

In developed countries as a result of the high demand for autos there exist very powerful allied auto industries. In these developed countries, especially in Japan the main producers generally carry out the design of the car and then assemble the end product with the parts and components provided by the allied industry. The innovations in the production techniques led to tight relationship and communication between the main and allied industry firms and they work together in research and development for the new products. As a result of this tight relation between main and allied industry firms, the just in time technique can be applied successfully which decreases cost of storage of the parts dramatically. The communication systems and

the flexibility in production in the allied industry increase the competition power of the allied industry as well as main industry.

During the last few years, the foreign capital has entered to Turkish auto allied industry as result of the transformation of the country towards an open economy. Some examples are; Sabancı Holding has set up a partnership with Japanese tire producer Bridgestone and established Brisa which will export about 2 million tires per year to Japan. The ITC Inland Technical Auto Allied Industry, which has a high General Motors share has started operation in Bursa by the high technology of GM.

There are a lot of European companies purchasing materials, parts and services on a global basis, and this development will still be progressing in the next few years. However a direct supply of European vehicle producers is not feasible, most Turkish automotive parts makers can only export to Western Europe, if they work as sub contractors for European parts makers and use the marketing channels of them. Some international supplier companies like AEG, Bosch, Siemens, Valeo which are producing with highest level technology will diversify by investing or shifting their plants to other countries to improve their competence in logistics and cost management. This also offers chances to Turkish auto allied industry. In order to supply products for these international markets; the product should have a standard quality, the deliveries should be made on time and the price should be stable.

Another important fact about Turkish auto allied industry is that; about 10 to 30 % of the products of the allied industry can reach the European quality standards and as a

result Toyota SA company which started in production during the end of 1994 does not accept about 80 % of the allied industry products due to low quality.

According to European Community the transplant products that have about 80 % of European content are regarded as European products. So in order to have export opportunity, the Japanese transplants - nowadays only Toyota-SA - producing in Turkey should at least 80 % Turkish content. In order to achieve this, the Japanese firms will also establish their allied industries in Turkey by investing huge amounts of capital in the near future.

3.4 Employment in Turkish Auto Industry

As the production quantities and the capacity utilization ratios are low the robots are not currently used in Turkish Auto Industry. So the employment rate in the industry is directly related with the production quantities. As the production increases, the number of employees increase (Table 4) .

TABLE 4 The Direct Relation Between Production Quantities and Number of Employees

	1991	1992	1993	1994	1995
Production	195 574	265 245	348 095	212 651	233 412
Employees	21 411	26 784	29 433	21 591	22 114

Source: Demirci, B., 1995. 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler' , Türkiye Sınai Kalkınma Bankası.
DPT, 1991. VI. Beş Yıllık Kalkınma Planı ÖİK Raporu.

The auto industry affects many other industries, it also affects the employment in these industries. According to some calculations, it is believed every one worker working in the main auto industry provides jobs for twenty other workers in the related industries (Table 5).

TABLE 5 The Number of Workers in the Auto Related Industries

Worker in the main industry	1
Workers in the allied industries-producing directly to the main industry and spare parts	5
Workers in the maintenance, repair and marketing firms	6
Workers for the maintenance of roads and fuel stations	4
Workers in the tourism, banking and insurance firms	4
TOTAL	20

Source: DPT, 1991 VI. Beş Yıllık Kalkınma Planı ÖİK Raporu

If we make a calculation by the help of the above table, we will find out that as the number of workers in the main industry was 22,114 during 1995 the sector provided jobs for 22,114 times 20 is equal to 442,280 workers.

3.5 The Productivity in Turkish Auto Industry

According to the '' Country Profile'' (1990-1991) published by Economic Intelligence Unit, Turkish Auto Industry is defined as: Small and inefficient by European and World standards, consisting of a large number of competing firms, mostly offshoots of international groups and all operating on a relatively small scale. These comments

bring the argument of productivity which may be defined in general as the number of units produced per worker in one year. Regarding the auto industry where thousands of different parts are assembled into a car, defining productivity becomes rather complex. Productivity may either be evaluated at each cost center that produces specific components or it may also be evaluated at the assembly line where all these parts are assembled. When the second definition is applied then the term productivity refers either the number of cars produced per worker or the turnover per worker (Aksoy,1990) .

When we look at productivity rates of Turkey, we see that the figures are close to the developing country standards (Table 6). It is observed that Turkey's figures are far from the worst of Japan and American producers, but better than the worst of European producers. This shows that Turkish producers should spend efforts for using lean production and increasing productivity.

TABLE 6 The Productivity Figures in different countries compared with Turkish Auto Industry

	JAPAN		U S A		EUROPE		DEVELOPING CO.		TR
	Average	Worst	Average	Worst	Average	Worst	Average	Worst	
PRODUCTIVITY (HOUR/AUTO)	16.8	25.9	25.1	30.7	36.2	55.7	41	78.7	42.5

Source: 'Türk Otomotiv Sanayii Verimlilik Analizi', TMMOB Makina Mühendisleri Odası , November 1993.

The productivity given as number of cars produced by one worker in a year is 17 in Turkey, 25 in France, 40.4 in Sweden, 32 in United Kingdom. Some of the reasons behind the low figures of productivity are the results of mistakes made during the selection of capacity and forecasting of the bottle-necks. As the auto demand is highly

affected from the changes in the economic conditions, the changes in the economic conditions are resulting in a fluctuating capacity utilization ratio in Turkey. There is a direct relationship between capacity utilization ratio and productivity . Consequently, when the capacity utilization ratio decreases the productivity figures are going down (Table 7).

TABLE 7 Relation between Capacity Utilization Ratio and Productivity

	1993	1994
Capacity Utilization Ratio	118	55
Productivity (Autos/Worker)	15.4	12.3

Source: Demirci, B., 1995. ' Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.

It can be seen from Table 7 that as Capacity Utilization Ratio decreased from 1993 to 1994 due to low demand, the productivity per worker decreased about 20 % . In order to increase productivity in Turkey the production quantities should be increased. For this purpose the product should be designed to meet domestic as well as international demand. International market is very important for Turkish Auto Industry, as the industry is highly dependent on changing macro economic conditions of the country. If the international demand is met, -when Turkey's macro economic conditions are turbulent- the production quantities would not fell sharply without decreasing productivity.

3.6 The Competition Power of Turkish Auto Industry

The Auto Industry is very important and always supported in Developed Western Countries as it provides production, value added, investment, employment and exports. However Turkish Auto Industry is far behind competing with these country's industries.

In auto manufacturing, the most time consuming process is pressing, which is the shaping with moulds by use of high pressure on the steel-sheets. All of the parts of the autos are prepared first by cutting of the steel sheets into the required dimensions and then pressing these plates into the desired shapes. When changing the moulds the presses should be stopped which consumes time and a lot of money. So it is obvious that, producing at higher quantities have cost advantage over the smaller ones. It becomes more evident that, the scale of production in auto manufacturing has a vital impact on the cost of production (Yıldız,1992),

In Turkey as cost of labor is cheaper when compared to Western countries, it is preferred to use limited number of presses and changing the moulds frequently, instead of investing on presses. Consequently, the inflexible technology and the equipment that require expensive initial investments make it unprofitable to produce at capacities that are lower than economies of scale. As a result it can easily be predicted that the Turkish auto manufacturers do not have much chance to compete with the foreign manufacturers, unless they reach scale economies (Yıldız,1992).

Auto industry also increases technological level of the whole country as well as providing value added and employment. High technological level is one of the most basic criteria that determines the competitive power of a country. So when auto industry increases the technological level of the country, it also increases the country's competitive power in international markets.

As a result of the high technological developments in the auto industries of the developed countries, the technological difference between the newly developing countries has increased and hard to compensate. In order to compensate these differences, the newly developing countries should give importance to their auto industries. Brazil and South Korea has given primary importance for their auto industries and succeeded in exporting autos to USA and Europe.

If the necessary importance is not given to the Turkish Auto Industry and side industry, in the near future the difference between the developed countries will increase and the industry will loose its chance to gain competitive power and increase productivity.

Increasing demand - without any doubt - will result in increased production which in return will enable the industry to produce in economies of scale with lower fixed costs. The quality will be improved and competition power increase. One alternative to increase demand may be producing lower priced, small, up-to-date technology passenger cars.

The demand decreases due to the financial crisis and unstable macro economic environment resulted in very low capacity utilization ratios in 1994 and 1995. As a result Turkish Auto Industry came far away from its target of producing in economies of scale which is the most important determinant for competition in the international markets.

In Turkish Auto Industry, there are already five producers; OTOSAN, TOFAŞ, OYAK-RENAULT, GENERAL MOTORS and TOYOTA-SA competing with each other. It is known that permissions and subsidies will be provided by the government for HONDA, HYUNDAI and MAZDA to open plants and start production in the near future. But, unfortunately the current demand in Turkey will not enable all of these producers to produce in economies of scale. However, in World Auto Industry as the competition and technology develops rapidly, some mergers take place between producers, so that they consolidate their powers together and gain competitiveness by producing at larger quantities with lower fixed costs. So permitting and subsidizing new firms to start production will be a big mistake as the current demand would not utilize this capacity. These new comers will not increase the competitive power of the whole industry but decrease it. As the demand diverges to many different producers, no one will produce in economies of scale. In short the number of producers should not be permitted to increase by the government.

The United States is the best example of this change in the number of auto producers with a decrease from 80 companies to 30 by 1930's and to 9 companies in 1950. And

after forty years the world demand is mostly provided by 15 leading companies (Table 8).

TABLE 8 Leading Vehicle Producers

COMPANY
GENERAL MOTORS
FORD
TOYOTA
NISSAN
VOLKSWAGEN
PEUGEOT-CITROEN
CHRYSLER
RENAULT
FIAT
HONDA
MAZDA
MITSUBISHI
SUZUKI
DAIMLER-BENZ
DAIHATSU

Source: Motor Vehicle Manufacturers Association of the United States, 'World Motor Vehicle Data' , 1992 Edition.

3.7 Demand and Capacity Growths in Turkish Auto Industry in 1990's

In the Sixth Five Year Development Plan, comprising the period of 1990-1994, a 12.6 % growth in the demand for automotive is estimated. Also a 20.6 % increase in the export is planned. Production is planned to have a 13 % annual increase to match the estimated increase in demand and developments in export (Altıncı Beş Yıllık Kalkınma Planı,1991).

In 1991, an economic recession took place in the developed countries. Apart from that the political and economical instability, due to the Gulf War, affected the production, investment and costs in a negative way. The strikes and high wage increases have increased the cost of production and the economic growth rate became 0.3 % although it was estimated to be 5.9 %. In such a turbulent economic environment the auto industry has shown a 17 % increase in production and 6 % increase in exports; also the capacity utilization ratio increased 10 points and reached to 81% (Table 9). These increases indicate that the auto industry continues its development stage without being heavily affected by the recession in the whole economy.

TABLE 9 Capacity Utilization Ratios in Turkish Auto Industry

	1991	1992	1993	1994	1995
C.U.R.(Percent)	81	102	118	55	54

Source: 1991-1992: Demirci, B., 1993. 'Taşıt Araçları İmalat Sanayiinde Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.

1993-1994: Demirci, B., 1995. 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.

1995: Calculated by the data provided in 'Automotive Industry Reports', December 1995, Koç Holding A.Ş. Yönetim Bilgi Sistemleri Koordinatörlüğü.

The manufacturing industry had a big share for the economic growth rate becoming 5.9 % in 1992. The value added by manufacturing industry in 1991 was 3 % whereas it became 7 % in 1992 which also increased GNP. The auto industry has also shown a 35 % production increase in 1992 compared to 1991. Consequently, the production capacities in auto industry were increased to 260 000 units (Table 10). In 1992 the auto industry's -including the allied industry- share in the whole manufacturing industry increased from 8.9 % to 11.9 %. Both exports and imports have increased in

this year. The share of exports in the whole manufacturing industry increased from 2.4 to 3.1 %.

TABLE 10 Production Capacity Increases in Turkish Auto Industry

	1991	1992	1993	1994	1995
Capacity(Units)	240 000	260 000	295 000	395 000	416 000

Source : 1991-1992: Demirci, B., 1993. 'Taşıt Araçları İmalat Sanayiinde Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.
1993-1994: Demirci, B., 1995. 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.
1995: Calculated by the data provided in 'Automotive Industry Reports', December 1995, Koç Holding A.Ş. Yönetim Bilgi Sistemleri Koordinatörlüğü.

During 1992 demand from the domestic market continued to act as a key for production and investment decisions for the sector. The Turkish Auto Industry has a structure which generally supplies to the domestic market. As a result the industry can easily be affected by either positive or negative events that occur in the macro-economical scale.

In 1993, the increasing trend for the demand in auto industry continued and the production of autos increased about 31 % and reached 348,095 units (Table 11). The capacity of the whole industry was expanded about 13 % parallel to the increase in demand. The capacity utilization ratio in the industry increased to 118 % from 102 % of 1992 (Table 9).

TABLE 11 Production Quantities in Turkish Auto Industry

	1991	1992	1993	1994	1995
Production(Units)	195 574	265 245	348 095	212 651	233 412

Source: 1991-1992: Demirci, B., 1993. 'Taşıt Araçları İmalat Sanayiinde Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.
1993-1994: Demirci, B., 1995. 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.
1995: Calculated by the data provided in 'Automotive Industry Reports', December 1995, Koç Holding A.Ş. Yönetim Bilgi Sistemleri Koordinatörlüğü.

In the second half of the 1993, current accounts and foreign trade deficits increased. There was excess liquidity and Turkish Lira started to depreciate. As the current accounts deficits were high and the country risk increased in international markets, there existed some difficulty in providing credits abroad.

Consequently, in January 1994 Moody's and Standard and Poors decreased the credit rating of Turkey and the financial crisis began. The largest economic recession of the last fifty years took place in Turkish Economy in 1994.

The financial crisis, economic bottlenecks and 5th April Economic Precautionary Package has changed the trend for the demand in the Auto Industry to reverse. As generally the industry produced for the domestic market and the exports were low, this crisis was tried to be passed by laying off employees and decreasing capacity utilization ratios. The capacity utilization ratio occurred as 54 % in this year (Table 9). The total capacity has been expanded by 100 000 units than 1993, but unfortunately the demand fell sharply and the production had to be decreased.

In real terms, the sector that has mostly been affected by the financial crisis of 1994 was the investment commodities. This investment commodities also include the autos in Turkey. The production of investment commodities decreased about 22 % in 1994 and their share in the GNP fell from 15 % to 12 %. However production of investment commodities decreased by 22 %, the production of auto industry fell about 41 % and production quantity fell to 1991 levels. As a result Turkish Auto Industry is the sector which has been mostly affected by the financial crisis in 1994.

The negative effects of the financial crisis of 1994 and the economical precautionary package has continued on the Turkish Auto Industry during 1995 as well. The auto production showed a very slight increase -about 10 %- in1995 compared to 1994, but as the total capacity in the industry also increased the capacity utilization ratio decreased (Table 9) .The production is about 67 % of 1993 production level.

This year TOYOTA - SA started producing passenger cars with a partnership of Japanese Toyota and Sabancı. The share of TOYOTA - SA in the whole passenger car market became about 9 % with 21,458 passenger cars (Table 12). It can be seen from table that TOFAŞ was the leader in the industry during the last ten year period.

TABLE 12 Production and Shares by Make of Passenger Cars in Turkey

PRODUCER	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
General Motors										
Volume					1156	6528	9363	12093	6626	7681
Percentage					1	3	4	3	3	3
OTOSAN										
Volume	6973	10378	11592	6140	7737	2671	2980	2256	6008	8543
Percentage	9	10	10	5	5	1	1	1	3	4
Oyak-Renault										
Volume	32943	43057	49416	51782	70060	78994	110659	133006	78067	74862
Percentage	40	40	41	44	42	40	42	38	37	32
TOFAS										
Volume	42116	54596	60018	60393	88413	10738	142243	200740	121950	120868
Percentage	51	51	50	51	53	55	54	58	57	52
TOYOTASA										
Volume										21458
Percentage										9

Source: Calculated by the data provided in 'Automotive Industry Reports', December 1995, Koç Holding A.Ş. Yönetim Bilgi Sistemleri Koordinatörlüğü.

3.8 The Effects of Government Policies for Turkish Auto Industry

Turkish Auto Industry is young when compared with World Auto Industry, but there are some countries which started to develop their auto industries at the same time with Turkey but surpassed Turkish Auto Industry. The main reason for this rapid

development is the stable government policies towards auto industries and government support for the auto industry.

One example for these countries is Spain. The government forced the domestic producers to increase the percentage of the domestically produced parts in an auto and wanted the producers to export about 65 % of their production. Also they protected their domestic auto industry from rivalry for seven years after being a member of the European Community.

South Korea is another example in which the government policies managed to create a successful auto industry in the worldwide scale. Total production was about 122,000 during 1983 but today it has been enlarged by about ten times. For this success the main part belongs to the governments stated decisions;

-A priority is given for the automotive industry as a sector which will bring industrialization for the whole country.

-A long term and stable master plan is prepared for the auto industry.

-The auto allied industry is encouraged to develop.

-The number of the producers are limited in number.

-The auto imports are limited.

The Turkish Government should also take some decisions in order to encourage the development of the auto industry. Some of the government policies might be as follows;

-The taxes for the products of the auto industry should be decreased.

-Second-hand auto imports should strictly be banned.

-Import of the new autos should be arranged according to model, type and origin country.

- Minimum export requirement should be brought for the new investments that have foreign share.

-A minimum domestically produced part usage must be brought in order to support allied industry.

-The energy prices should not be increased continually.

-The export restrictions in the license agreements should not be permitted.

-The instruments and tools for the quality control should be imported duty free.

-The decisions about the industry should be taken together with the representatives from the auto industry.

-The government subsidies should not be provided for the firms but to the sector as a whole.

-In the public auto purchases the priority should be given for the domestic firms.

Implementation of these policies would help the development of the domestic auto industry, but strict control over the producers should be taken so that they should not only take the advantage of these protectionist decisions and do not help to develop a strong auto industry which will compete in the international markets and export products.

3.9 Factors that Affect Demand in Turkish Auto Industry

Turkey's development strategy for the near future is capital intensive, competitive and highly technological model. In the near future, competition in the domestic and international market will continue to increase; consequently the firms should produce in economies of scale with highly developed technology. Huge investments are needed for the industry to reach that technology, but amortization of the investment is not easy as the current domestic and international demand are not high in quantity. So, first of all the domestic demand should be strengthened so that these investments for the development of Turkish Auto Industry would be feasible.

When we compare the figures of people that fall per one auto in the World with Turkey, it can be easily observed that there already exists high demand potential in Turkey (Table 13). This high demand potential can not be transformed into real demand due to various factors.

TABLE 13 The number of People Falling to One Auto in Different Countries, 1990

COUNTRY	PEOPLE/AUTO	COUNTRY	PEOPLE/AUTO
AUSTRIA	2.6	PORTUGAL	7.1
BULGARIA	7.3	SPAIN	3.5
DENMARK	3.2	SWITZERLAND	2.3
FINLAND	2.6	UNITED KINGDOM	2.6
FRANCE	2.4	YUGOSLAVIA	7.4
GERMANY	2.3	RUSSIA	23
GREECE	6.3	CANADA	2.1
HUNGARY	6.1	USA	1.7
IRELAND	4.6	MEXICA	14
ITALY	2.4	**TURKEY**	**39**

Source: Demirci, B., 1993 'Taşıt Araçları İmalat Sanayiinde Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.

Macroeconomic policies - the mix of monetary, fiscal and trade policies - have immediate and obvious effects on the automotive market. Because a car normally represents a consumer's second largest lifetime purchase (after a house), interest rates have a disproportionate impact on demand (Dyer,1987).

As a result of the lack of stable, unturbulent macro economic environment in Turkey, the investment, production and export decisions can not be taken effectively. When a stable macro economic environment is established, the income growth for the citizens would also become stable. The demand for autos tends to be responsive for income growth. As the personal income of the consumers grow, the demand also grows (Table14) . In an high inflationary, unstable macro economic environment the real incomes decrease, interest rates increase and the re-payment periods decrease. In such an environment instead of borrowing money and purchasing autos (consumer credits) , the consumers prefer to lend money. An inverse relationship between the rate of interest on savings and time deposits and the demand for autos exist as people tend to save more when the interest rates increase. Starting from February 1994, the high inflation factor played an important role in Turkish economy and the sales of autos decreased leaving high stocks. Consequently, the production had to be terminated from time to time so that, these high level of stocks could be decreased.

Macroeconomic policies, by definition are not supposed to discriminate among industries, although in practice large, politically prominent industries such as autos are hurt or helped more than others (Dyer,1987) .

TABLE 14 The Direct Relation Between Autos per 1 000 Person and GNP per Capita , 1990

COUNTRY	AUTOS PER 1 000 PERSON	GNP PER CAPITA(DOLLARS)
GERMANY	483	18 212
FRANCE	405	17 376
UNITED KINGDOM	379	15 882
HOLLAND	358	15 708
SPAIN	286	11 738
IRELAND	226	10 627
GREECE	154	7 323
TURKEY	**46**	**3 318**

Source: International Automotive Review, 1994.

Another reason for the potential demand not being transformed into real demand is the high rate of taxes which increase the price of the passenger cars. The average price of an auto affects the demand to a great extend. According to the demand theory, the price is known to be negatively associated with demand. In other words, it is expected that as the price increases the demand for autos should decrease unless the commodity is an inferior good. The taxes that directly affect the auto prices are; Value Added Tax, Auto Purchase Tax, Additional Auto Purchase Tax, Environment Pollution Fund and Motor Vehicle Tax. The taxes are the highest among various countries which act as a barrier against demand and production increases (Table 15). The significance of these taxes against demand increases can be seen in July 1994; when the Additional Auto Purchase Tax decreased from 12 to 6 %, some real increases in the demand took place.

TABLE 15 The Taxes that Directly Affect the Prices of Autos in Turkey compared with other Western Countries

COUNTRIES	TAXES(PERCENT)
BELGIUM	25.0
FRANCE	25.0
UNITED KINGDOM	24.6
PORTUGAL	22.4
ITALY	19.0
HOLLAND	18.5
GERMANY	14.0
SWITZERLAND	8.0
TURKEY	40-70

Source: OSD Reports

Apart from the high level of these taxes the system is very complex and time consuming. By a research carried out by OSD it is found out that, when the total taxes on the auto prices decreased by 20 %, the demand will be increased by 37 % in year 1997. The loss that will occur by decreasing these taxes will be compensated as the total demand increases.

But unfortunately, instead of decreasing these taxes government preferred to increase them and by January 1996 the Additional Auto Purchase Tax increased to 18 % from 12 for autos that have a cylinder capacity of 1600 to 2000 cc. and to 24 % for larger than 2000 cc. , the value added tax is also increased to 40 % from 23 for cylinder capacities larger than 2000cc. These increases have very large impact on the decreasing demand in Turkish Auto Industry.

Consumer credits, which started in the second half of 1989, had a significant effect on the demand increase for auto sales by increasing the purchasing power of the consumer (Table 16). Between 1989-1994 3,448,063 consumers used consumer credits and 41 % of these credits were used for purchasing autos. A positive relationship is expected between auto demand and the credit availability.

TABLE 16 Relation between Auto Sales and Consumer Credits

	Number of Credits	Auto Sales	Share of Credits (Percent)
1990	60.942	234,199	26
1991	33,667	223,476	15
1992	137,456	309,294	44
1993	184,393	442,859	42
1994	21,032	225,314	9

Source: Statistics of Association of Banks

These credits have decreased in 1994, because due to the financial crisis the interest rates increased and re-payment periods decreased. As a result, an average consumer could not afford to take credits and the sales fell sharply. Also the Value Added Tax is taken from the installments as well in other words the consumer is forced to pay for the interest which increase the price of the auto.

3.9.1 Results of the Regression Analysis

Regression analysis, which is a least squares estimation technique, is used in estimating the production quantities of autos in Turkey. The analysis is based on the annual time-series data covering the period of 1979-1995. Microsoft Excel is used in the regression analysis and both single and multiple regression have been carried out for estimating the relative significance of the independent variables, namely annual inflation rates, deflated price of autos, annual interest rates and GNP per capita. Two different multiple regression equations have been found out; in the first one the dependent variable is the annual auto stock in the country that falls to a thousand people and in the second one the annual production quantities of autos appeared as the dependent variable. The data for the variables of the regressions are given in Appendix A and the outputs of the Excel are in the Appendix B of this thesis.

The import duties on autos are also considered to be an important independent variable, but due to the unavailability of appropriate statistics it could not be included in the regression analysis. This was due to the fact that import of autos were not allowed unless a worker's permit is issued. After 1984 there had been a serious change in the import regime and import of autos were allowed. But the regulations are still not stable and there are changes in custom duties every time which makes it impossible to have time series data of this variable.

According to the results, when we regress the autos per 1,000 people in Turkey with inflation rate it can be observed that autos per 1,000 person varies inversely with the

inflation as it has been stated in this section. The Adjusted R Square, that is the adjusted coefficient determination showing the explanatory power of the equation, indicates that 53 % of the variations in the dependent variable, autos per 1,000 person, can be explained by the independent variable, annual inflation rates. The single regression equation is as follows;

$Y = 13.77 - 0.222313 X$ where,

Y is the autos per 1,000 person

X is the annual inflation rates

The coefficient of the independent variable is -0.222313 which means that as inflation rises by 1 point, the autos per 1,000 person will decrease by 0.222313.

When the autos per 1,000 person is regressed with the average deflated price of an auto, we found out that the Adjusted R Square is 40 %, which indicates that these variations can be explained by the average deflated price changes. The single regression equation is as follows;

$Y = 19.289 - 0.021192 X$ where,

Y is the autos per 1,000 person

X is the average deflated price of an auto

The coefficient of the independent variable is found as -0.021192. As the deflated average auto price increase by one unit the autos per 1,000 person decrease by a quantity of 0.021192.

The interest rates also have an inverse relation with the total auto stock and 72 % of the changes in the autos per 1,000 person can be explained by the changes in interest rates. The single regression equation is as follows;

$Y = 4.818 - 0.38297011\ X$, where,

Y is the autos per 1,000 person

X is the annual interest rates

As the interest rates increase by one point, the autos per 1,000 person will decrease by 0.38297011.

Only income growth has a direct relation with the autos per 1,000 person. About 65 % of the changes in the autos can be explained by GNP per capita increases. The single regression equation is as follows;

$Y = -3.748 + 0.015726573$ where,

Y is the autos per 1,000 person

X is the GNP per capita in USD

When the GNP per capita increase by one unit in dollar terms, the autos per 1,000 person will increase by 0.015726573.

A multiple regression analysis including all these four variables in only one equation was also performed, in which the Adjusted R square was 91 % and the output equation occurred as;

$$Y = -11.37452455 - 0.031469721\,X1 - 0.013577\,X2 - 0.28551\,X3 + 0.009697\,X4$$

Y is the autos per 1,000 person

X1 is the annual inflation rates

X2 is the average deflated price of an auto

X3 is the annual interest rates

X4 is the GNP per capita in dollars

The result of the multiple regression equation is also in accordance with the single regression equations and the overall effect of the four different variables can be estimated by putting the actual values of these variables in this equation.

Another multiple regression equation has also been carried out in which all independent variables are same as the first multiple regression but only the dependent variable changed as the annual production quantities of autos. The Adjusted R-Square is found out to be 87 % and the equation is as follows;

Y= -100537.6386 - 214.441 X1 - 238.192 X2 - 117.231 X3 - 131. 312 X4

Y is the annual production quantities of autos

X1 is the annual inflation rates

X2 is the average deflated price of an auto

X3 is the annual interest rates

X4 is the GNP per capita in dollar terms

The producer firms can forecast the future production quantities for autos when they have the available data about the independent variables of the coming year. By the help of these figures the investment decisions can be made easier. Also the producer firms can also adjust their prices so that the production quantities can be increased.

However, in Turkey, the result of these equations can not be so distinct as the demand fluctuations generally occur due to many different decision changes about auto industry of the different governments. As there is no master plan for the Turkish Auto Industry, regulation changes overnight always take place which directly result in demand fluctuations.

Also, these factors are not the only ones which affect the demand for autos. Factors such as; occupations, geographical location, the increase in population, improvements in standards of living, the psychological atmosphere whether optimistic or pessimistic, fashion, personal interest and love towards autos, showing off, the autos place in the

public and the level of activities of the business firm sector might be expected to influence the demand for autos.

3.10 International Trade in Turkish Auto Industry

International trade in Turkish Auto was not so well developed until 1990's, the import and export quantities were close to each other from 1982 to 1989. But due to decreases in tariff for imported autos in the end of 1989, the import of autos increased sharply and export import ratio fall to 8 % and this trend was observed until 1994. In this year due to the financial crisis and depreciation of Turkish Lira, imports fell which continued through 1995.

3.10.1 Exports

Until 1980's, the exports in Turkish Auto Industry was negligible. In 1981 the exports comprise about 5 % of the whole manufacturing industry exports. The exports of autos between 1982-1990 are given (Table 17).

TABLE 17 The Auto Exports between 1982-1990

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Auto Exports (Units)	3,967	3,343	3,888	3,760	4,997	4,987	6,102	8,220	5,598

Source: OSD

Although the figures are quite high, they do not represent the real exports as they include the exports to Republic of Northern Cyprus and the government subsidized autos sold in the domestic market (Ünsal,1989). Other countries that exports took place during this period were Egypt, Tunusia, Libya and Irac.

During this plan period as well as the previous ones, there will be no expectations for exporting large quantities of autos to European Community Countries; but if subsidized and supported by the license companies side-industry products can be exported (Altıncı Beş Yıllık Kalkınma Planı ÖİK Raporu).

TABLE 18 The Auto Exports between 1991-1995

	1991	1992	1993	1994	1995
Auto Exports (Units)	5,790	8,996	6,846	12,802	12,200

Source: Demirci, B., 1995. 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.

In year 1992, exports of autos showed an increase of 55 % (Table 18). 58 % of Automotive Industry Export were autos, but 65 % of the automotive exports were government subsidized products sold in the domestic market. The exports in the automotive industry comprise only 22 % of imports during this year.

During 1994 due to the devaluation and shrinkage of domestic demand, exports started to increase. The total country exports increased 18 % compared to 1993. The auto exports in units increased about 87 %.

Another development in this year was the expansion in the number of countries where exports took place. As the domestic demand fell sharply in 1994, the producers started to find out new markets. Consequently, 42 % of exports of the automotive industry were made to European Community countries and rest to 49 other countries. The exports in automotive industry increased to 40 % of imports in this year. However the exports are very low in quantity when we compare them with the total capacity of Turkish Auto Industry. In 1994, the total capacity was 395,000 units and the total auto exports were only 12,802 ; only 3 % of the capacity.

In order to be able to increase the capacity utilization ratio and decrease fixed costs, the producers need to concentrate on export which is very low for the time being. Even the Western manufacturers that are producing at scale economies, but supplying only to the domestic problems, face problems when there is a tightening of demand in the domestic market. Whereas manufacturers that export large quantities of cars do not come up with problems of profitability, productivity and competitiveness even if there is a decrease in domestic demand. Therefore, the manufacturers should always concentrate on export markets in order to overcome the insufficient demand periods in the domestic market.

3.10.2 Imports

In Turkey, sometimes the import duties change two or three times a year. As there is no a 'master plan' for the automotive industry, the producers face uncertainty. The

automobile producers generally base their program on five years, but in Turkey, due to the uncertainty in the auto industry they cannot make reliable predictions of the future (Otomotiv Sanayii' nden Haberler, April 1991).

Before 1980's there were high custom tariffs and quotas which acted as barriers against imported autos. The tariff for autos was about 75 % of the price in 1983. The quotas was expanded in 1984 and the export quantities started to increase - especially for the second hand autos - and reached 8,849 units (Table 19). During 1984 and 1985 Turkish Auto Industry had been affected negatively by the second hand imports.

TABLE 19 The Auto Imports between 1982-1990

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Auto Imports (Units)	2,795	3,219	8,849	12,806	6,975	5,115	4,655	7,094	65,390

Source: OSD

But in 1986 in order to avoid second hand imports, the after sales service must for the importers brought by the government and imports decreased.

During 1986-1989 although the tariffs had been lowered and imports unrestricted, the domestic autos were preferred by the Turkish consumer as the prices were lower and after sales services were more reliable (Altıncı Beş Yıllık Kalkınma Planı ÖİK Raporu).

By the end of 1989 the custom duties and taxes were reduced to be in harmony with the European Community. As soon as the imported auto prices fell about 8 to 20 %, a

boom in the purchase of imported autos was observed . The sales increased from 7,094 of 1989 to 65,390 in 1990 (Table 19). This sudden increase brought its problems with it. In fact foreign competition was needed in Turkey to force domestic producers improve quality and reduce selling prices, but the import regime should be made on a program within a specified period. It should also be noted that about 40 % of the import has been made from the Eastern Block Countries and about 30 % from Japan (Otomotiv Sanayii'nden Haberler, October 1989).

In 1991, due to the economic recession in the world and the economical and political uncertainties resulting from the Gulf War, import of autos has decreased (Table 20).

TABLE 20 The Auto Imports between 1991-1995

	1991	1992	1993	1994	1995
Auto Imports (Units)	33,692	53,045	101,610	25,465	25,700

Source: Demirci, B., 1995. 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler', Türkiye Sınai Kalkınma Bankası.

As a result of the vigor due to the production increase in the country, the total demand as well total imports have increased during 1992. The share of auto imports in the total automotive imports have increased from 72 % of 1991 to 73. The percentage shares of countries that automotive imports have taken place during 1991 - 1994 are given on Table 21 .

TABLE 21 Share of Countries in Automotive Imports

COUNTRIES	1991	1992	1993	1994
JAPAN	42	37	25	17
GERMANY	29	26	21	37
RUSSIA	10	13	39	24
SOUTH KOREA	6	5	9	14
OTHER 45 COUNTRY	13	19	6	8

Source: Bulletin of Agents of Imported Autos Association.

In year 1993, due to the reasons like ; economical growth, nominal prevention ratio decreases, credits by foreign countries and decreases in prices of imported autos- because of recession in OECD countries- had resulted in an increase of 95 % for demand of imported autos. The imported auto quantity reached a peak point during this year (Table 20).

However Turkish Lira depreciation lead to price increases in 1994 and lack of foreign credits decreased the demand for the imported autos sharply. The same trend continued in 1995.

3.11 The Position of Turkish Auto Industry After Customs Union Agreement

The Customs Union Agreement has been signed on 6th March 1995 as a consequence of Ankara Agreement which was signed on 1st December 1964 and Additional Protocol

on 1st January 1973. By this agreement Turkey entered Customs Union on 1st January 1996.

The decisions that was taken on this agreement about Turkish Auto Industry are as follows:

- Although the time is not strictly determined, about ten years the second -hand auto imports will not be allowed to enter Turkish auto market.

- The tariff rates for autos coming outside EC Countries will not be changed until year 2 001.

-A five year period is given for Turkey to be in harmony with the technical specifications of EC.

By the 6th March Agreement the factors that carry risk for Turkish Auto Industry has been avoided and second-hand imports was banned for ten years.

The six of sixteen countries that constitute EC are the ones that take place in the first ten auto producing nations on the world. In 1995 these six countries have produced about 42 % of world auto production (Table 22) .

TABLE 22 The share of EC countries in the World Auto Production

	1990	1991	1992	1993	1994	1995
SHARE(PERCENT)	43	44	45	41	41	42

Source: International Automotive Review, 1994.

Turkey's auto production was the highest in 1993 with 348 000 units which was higher than Sweden and Belgium. But in 1994, due to the financial crisis the production fell sharply. The 1994 production quantities are given on Table 23 .

TABLE 23 Auto Production Quantities of EC Countries,1994

COUNTRY	AUTO PRODUCTION(1 000 UNITS)
GERMANY	3 750
FRANCE	2 895
UNITED KINGDOM	1 450
ITALY	1 275
SPAIN	1 530
SWEDEN	300
BELGIUM	347
HOLLAND	80
AUSTRIA	41
TURKEY	213

Source: International Automotive Review, 1994.

The Turkish Auto Industry has low competition power in the international markets due to some structural problems. The financial crisis and the recession have also weakened industry's competition power. Some of the structural problems of Turkish Auto industry against EC countries are as follows:

-The production capacities of the producers are generally far from producing in economies of scale.

-The current and short term domestic demand will not be enough to amortize the investments that will be made to enlarge the current capacities and renewal of the technologies.

-The macro economical developments in the country result in the decrease of auto demand and investment decisions of the producers. Consequently, producing in economies of scale- which is the most determinant of the international competition- can not be achieved.

-Although the labor costs are lower in Turkey compared to EC countries; the productivity figures are about half of EC countries. As the productivity figures are low in Turkey, an average auto is produced at 10-20 % higher costs.

As a summary when scale of production, productivity, cost of production and quality are taken into consideration, we may say that competing in international markets for Turkish Auto Industry is not easy. However, the industry has been in a dynamic development period until 1990's in order to solve the problems stated above. For this purpose the capacities are being enlarged, new model production and modernization investments are being made, total quality management is tried to be applied and product qualities are tried to be increased.

The cost of import autos for the importers from EC countries decrease about 24-37 % and consequently the share of them will increase in the domestic market. The cost of imports from other countries will not be decreased as the prevention will continue until 2001. But as the prices of autos from Eastern Europe and South Eastern Asian countries are not high, their market share will not be decreased to a great extend.

The big chance for Turkish Auto Industry is that; by 6th March Customs Union Agreement their strongest rivals 'the second hand auto imports' will not be allowed to enter Turkish market for ten years period. However this ten year period is not strictly determined, and the European Community Countries may force Turkish Government to shorten this period as second-hand imports will be very beneficial for them. This period should be made distinct so that no shortening can be made in the future.

It is known that World Auto Industry is controlled by some multinational companies and the producers that do not integrate with them can not compete in the international arena (Demirci,1995). All of the five producers in Turkey have foreign investment shares; GM has a 100 %, Oyak-Renault has 57 %, Toyotasa has 50 %, Tofaş has 42 % and Otosan has 30 % foreign shares. These producers should determine strategies with their foreign partners and provide expertise on some specific model so that they can reach to international markets with these specific models by the help of their foreign partners.

It is predicted that in a few years time period there will be important structural changes in the both Turkish Auto Industry and Allied Industry. The number of producers will be decreased and the remaining ones will produce in economies of scale with higher technologies. So the producers which invest for plants with higher technologies will survive.

3.12 The Probable Effects of the New Duty - Free Import Policy for Second-Hand Autos

The duty free imports were allowed for only autos until 1984, then trucks and busses were also allowed. By 1985 more than 6,300 second-hand autos, busses and trucks, which had finished economical operating life, imported to Turkey. This was a very heavy load for the Turkish economy (Altıncı Beş Yıllık Kalkınma Planı ÖİK Raporu , 1991).

There were no any spare parts and after sale services available for these imported autos. These imports made Turkish Automotive Industry - especially for the commercial vehicles- enter a crisis. The share of the tariffs that come to the treasury from these second-hand autos were also very low and the Turkish Auto Industry was forced to compete with these imports. So these duty free second hand imports were not allowed anymore during The Sixth Five Year Plan Period (Altıncı Beş Yıllık Kalkınma Planı ÖİK Raporu, 1991).

In July 1996, the Government has confirmed that Turkish people working abroad will have a permission to import duty free autos. By this confirmation Turkish Auto Industry has lost the advantage of 6th March 1995 Customs Union Agreement which avoids second-hand imports for ten years period. The conditions will be investing 50,000 DM in a one year time deposit account at a specified interest rate of 11 % and the car should be 0 to 5 years of age.

The Auto Industry and the Employee Syndicates have shown a very severe reaction towards this decision and told that Turkey will again be a graveyard for the imported second hand autos like the one in 1985 if this confirmation is accepted (Milliyet , 23rd August 1996) .

Later the 50,000 DM limit for the account decreased to 30,000 DM and cylinder capacity limit raised. So a worker can import an auto for a 30,000 DM deposit every year. But although there exist severe reaction from the industry, the decision is tried to be enlarged as one auto for every 30,000 DM deposit ; in other words one worker can import many autos at the same time.

The President of Sabancı Holding Sakıp Sabancı told that this decision is very wrong for the industry, investors and thousands of employees in the industry. He also added that in order to compete in international markets, Turkish Auto Industry should increase production (Milliyet, 23 rd August 1996).

İstanbul University Chairman of European Community Prof. Arif Esin pointed out that there were some desires from EC to Turkish Government in order to permit second-hand auto imports. So Turkish Government have to accept this desire, but it will affect the Turkish Auto Industry in a negative way. Only the confirmation has shown the negative effects and the sales in the industry fell sharply as it brought expectations for low priced autos in the minds of Turkish consumers. He also added that there would be imports from countries like South Korea, Russia, Slovakia and even USA who are not members of EC (Auto Show, 30th July 1996).

Association of Imported Autos President İlhan Çetinkaya told that the new decision of the government will not provide funds for the Turkey but it will take away funds. This fund decrease from budget would be 2 billion DM per year. 100,000 employees will lose jobs and 20 billion US Dollar investment in Turkish Auto Industry will be spoiled. He also added that Turkish auto exports, which has reached 3 billion DM per year, would be zero in 4 years time(Milliyet,24th August 1996).

The government will also lose taxes by this decision as 50 % of an average auto price are taxes. For example a Toyota Corolla produced by TOYOTA-SA and sold for 1 650 million TL provide a tax income of 825 million for the government (Doğru,1996).

It can also be couter argued that Turkish Auto Industry has exploited domestic market by prevention of the government during the last 25 years. They produced low quality autos, couldn't learn lowering production costs and selling at lower prices. This criticism may be true; but EC member countries, like Spain and Portugal don't let second-hand auto imports and France provides a support of 2,000 Francs for the domestically produced second-hand autos. So why does Turkish Government compress the domestic producers with such a decision (Doğru,1996).

The Minister of Industry Yalım Erez confirmed that their purpose for the decision is not to bankrupt Turkish Auto Industry. They also would not repeat the previous mistake which made Turkey a graveyard for the imported second-hand buses and trucks. Their only desire is ; Turkish Auto Industry's successful competition with the

World Auto Industry and providing high quality, low priced autos for the Turkish consumer as well as gaining the savings of the Turkish worker living abroad to Turkish Economy. (Milliyet 24th August 1996) .

However in the last days of August there are some signals that the government will soften the decision due to the severe reaction of the industry and the syndicates. It is said that, the period for the duty-free imports will be shortened so that at most 10,000 second hand imports could be made. Nothing is definite about this new decision yet and the demand for the domestically produced autos fell sharply and reached a bottom point at end of August 1996.

CHAPTER 4

CONCLUSION AND RECOMMENDATIONS

Auto Industry provides benefits to nations' economies by providing employment, increasing GNP and production. The industry connects many industries and plays a key role when determining the competitive power of the nations. It also increases the governments' revenues by providing tax income. So, auto industry is very important for developing as well as more developed countries and the government intervention and the relationship between government and the industry is critically important.

When the productivity and competition power of Turkish Auto Industry is compared with world's leading auto producing countries, it can easily be observed that Turkish Auto Industry's figures are quite low.

The main reason for the industry being far behind Japan, European and American auto industries is the lack of high level of production quantities which would make new high technology investments feasible and shorten the amortization periods of these projects. In order to achieve this Turkish Auto Industry should produce in economies scale .

There are many reasons for this low level of production and producing behind economies of scale. The most important reason is the lack of strong, stable domestic demand.

When the people that fall to one auto figures are examined it can easily be seen that Turkey is far behind many countries, including Russia and Yugoslavia, with 39 people per auto. So it can easily be guessed that there exists high potential demand for autos in Turkey.

This high domestic demand potential can not be transformed into real demand due to many reasons. The most important one is the lack of stable macro economical environment in the country. As Turkish Auto Industry generally supply for the domestic market, the sector is the one that is mostly affected when a financial or political crisis arise in the country. The examples are the Gulf War in 1991 and the financial crisis in 1994. In an high inflationary, unstable macro economic environment the demand for autos decrease as the interest rates increase and the real incomes of the consumers decrease.

The high level of taxes which is directly reflected on the selling prices of autos is an important factor that avoids the demand for autos. These taxes, that reach about 40 to 70 % of the price of an average auto, should be decreased to European Community standards which is 20-25 % . The tax income that is going to be lost by the government can be covered as the total demand increases.

Consumer credits play a central role in the demand increase. As these credits increase the purchasing power of the consumers, between 1990 and 1994 more than 30 % of the auto sales made by these credits. But in year 1994 these credits have lost their attraction between the consumers. Due to the financial bottlenecks in the country, the interest rates for these credits have increased and re payment periods decreased. So an average consumer could not afford to buy auto with these credits. These credits should be made attractive for the consumers again by the help of producer companies.

The world auto industry is at the stage of integrating lean production which targets continually decreasing costs, zero defects, zero inventories and endless product variety. But Turkey is still trying to take the benefits of mass production. The main reason behind Turkey's being far away from up to date technologies and facing insufficient demand seems to lie in the undefined policy for Turkish Auto Industry. There is no master plan for the industry and the producers can not forecast the future of the industry so they can not invest in technological developments. There is no well defined policy for the auto industry, the regulations may change overnight, the tax rates and import duties change frequently which result in the fluctuating auto demand in the country. A long term master plan for the Turkish Auto Industry should be prepared together with the representatives of the industry and government officials so that the manufacturers forecast the future of the industry easier and make investment decisions accordingly.

The new duty-free import policy of the government is an example for this regulation changes overnight. By this policy, the Turkish people living abroad will have the right

of importing duty free second hand autos when they invest some quantity of foreign currency in an account for a one year time deposit at a pre-determined rate of interest. This new decision would have a negative effect on Turkish Auto Industry as the prices of these second hand imports can easily compete with the domestically produced new autos. Consequently, as soon as this new decision of the government has been announced, the sales figures of the domestically produced autos fell sharply and hit a bottom point. The government should rearrange this new decision as the effects of the duty - free second hand imports will be very heavy for both Turkish Economy and Turkish Auto Industry. Turkey will become a graveyard for the imported second hand autos like the one that had occurred in 1985. The second hand auto imports should not be permitted for ten years period as stated in the 6th March 1995 Customs Union Agreement.

If the domestic demand is strengthened by the efforts of the government and the producer firms, the domestic producers will reach producing in economies of scale. So there will be no severe difficulties for Turkish producers in competing with their foreign rivals after Customs Union Agreement. All of the five producers in Turkey have foreign investment shares. They should determine strategies with their foreign partners and provide expertise on specific models so that they can reach international markets and export their products .

It is predicted that after Customs Union Agreement the number of producer companies both in the Turkish Auto Industry and Allied Industry will be decreased and the remaining ones will produce in economies of scale with higher technologies.

A last point is that; for the time being the current demand for autos in Turkey is not enough for the already existing five producers to produce in economies of scale. It is known that permissions and subsidies will be provided by the government for some new companies to open plants and start production in the near future. However, in World Auto Industry some mergers take place between producers. As they converge their power, their competition power also increases by producing in economies of scale. The new comers to Turkish Auto Industry will not increase the competition power of the whole industry but decrease it; as the demand diverges to many different producers, no one will produce in economies of scale with lower fixed costs. So for the time being, the government should not permit new comers to open plants and start production.

The auto industry as a source of employment and technological development is very important for Turkish Economy, the government decisions are the key determinant for the future of the industry - as it was in every auto producing country in the past - ,so Turkish Government should pay more attention and find solutions for the problems of the industry.

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APPENDIX A -VARIABLES OF THE REGRESSION ANALYSIS

TABLE A-1

YEAR	TOTAL AUTO STOCK	POPULATION (THOUSAND)	AUTOS PER 1,000 PERSON
1979	688,687	43,530	15.8
1980	742,252	44,438	16.7
1981	776,432	45,540	17
1982	811,465	46,688	17.4
1983	856,350	47,864	17.9
1984	919,577	49,070	18.7
1985	983,444	50,306	19.6
1986	1,087,234	51,433	21.1
1987	1,193,021	52,561	22.6
1988	1,310,257	53,715	24.2
1989	1,434,579	54,893	25.8
1990	1,649,879	56,098	29
1991	1,864,344	57,305	32.5
1992	2,111,354	58,401	36.1
1993	2,619,852	59,491	44
1994	2,846,166	60,576	47
1995	3,098,703	61,644	50

Source: Demirci , B. , 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler , TSKB , İstanbul , 1995 .

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TABLE A-2

YEAR	AVERAGE PRICE OF AN AUTO	CONSUMER PRICE INDEX	DEFLATED PRICE
1979	497,833	934	533
1980	772,414	1,883	410
1981	946,555	2,522	375
1982	1,164,900	3,237	360
1983	1,531,000	4,254	360
1984	1,850,600	6,313	293
1985	2,293,000	9,150	251
1986	3,825,667	12,319	311
1987	5,680,167	17,104	332
1988	8,265,833	29,995	276
1989	16,468,000	50,872	324
1990	27,662,500	81,548	339
1991	43,234,737	135,370	319
1992	74,830,683	230,210	325
1993	129,487,014	382,297	338
1994	342,063,023	788,570	434
1995	658,499,114	1,526,986	431

Source: 1970-1984 : Esen, A.S., 1985 . ' Türkiye'de Otomobil Talebi, Dünü, Bugünü, Yarını,' Paper presesented at the First Automotive and Allied Industry Symposium of Turkish Chamber of Mechanical Engineers.

1985-1995 Calculated from the auto prices given by Automotive Manufacturers Association.

TABLE A-3

YEAR	PRODUCTION	INFLATION	INTEREST RATES	GNP PER CAPITA (USD)
1979	26,494	64	20	1,837
1980	31,529	107	33	1,556
1981	25,306	37	38	1,574
1982	31,195	27	41	1,387
1983	42,509	30	45	1,280
1984	54,832	50	45	1,234
1985	60,353	43	50	1,353
1986	82,032	29	41	1,487
1987	107,185	32	51	1,671
1988	120,796	68	69	1,747
1989	118,314	70	66	2,005
1990	167,556	53	57	2,667
1991	195,574	55	63	2,621
1992	265,245	62	69	2,708
1993	348,095	58	65	3,004
1994	212,651	121	129	2,184
1995	233,412	89	93	2,685

Source: Demirci , B. , 'Taşıt Araçları İmalat Sektöründe Gelişmeler ve Beklentiler , TSKB , İstanbul , 1995 .

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APPENDIX B - REGRESSION OUTPUTS

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.76095578
R Square	0.5790537
Adjusted R Square	0.5309907
Standard Error	9.825718201
Observations	17

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	575.6936335	575.6936335	5.962972654	0.027473849
Residual	15	1448.171072	96.54473816		
Total	16	2023.864706			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	13.77048025	5.837162197	2.359105296	0.032301051	1.328855895	26.21210461	1.328855895	26.21210461
X Variable 1	-0.222313	0.091040417	2.44191987	0.027473849	0.028265228	0.416361577	0.028265228	0.416361577

DEFLATED PRICE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.642374572
R Square	0.412645091
Adjusted R Square	0.398727491
Standard Error	11.51965339
Observations	17

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	33.32849158	33.32849158	0.251152112	0.623539176
Residual	15	1990.536214	132.7024143		
Total	16	2023.864706			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	19.28903646	15.21101203	1.268096851	0.224093213	-13.13248815	51.71056106	-13.13248815	51.71056106
X Variable 1	-0.021192	0.042287095	0.501150787	0.623539176	-0.068940654	0.111325076	-0.068940654	0.111325076

INTEREST RATES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.857132101
R Square	0.734675439
Adjusted R Square	0.716987135
Standard Error	5.983204356
Observations	17

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1486.88369	1486.88369	41.53453235	1.10437E-05
Residual	15	536.9810154	35.79873436		
Total	16	2023.864706			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4.817890962	3.704206378	1.300654032	0.213004943	-3.077442893	12.71322482	-3.077442893	12.71322482
X Variable 1	-0.38297011	0.059423772	6.444729036	1.10437E-05	0.256311257	0.509628955	0.256311257	0.509628955

GNP

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.821635328
R Square	0.675084612
Adjusted R Square	0.653423587
Standard Error	6.621101547
Observations	17

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1366.279921	1366.279921	31.16586524	5.2318E-05
Residual	15	657.5847854	43.83898569		
Total	16	2023.864706			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-3.745701261	5.699303454	-0.657220885	0.520996528	-15.89348649	8.402083963	-15.89348649	8.402083963
X Variable 1	0.015726573	0.00281705	5.582639631	5.2318E-05	0.00972217	0.021730976	0.00972217	0.021730976

MULTIPLE REGRESSION

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.966561236
R Square	0.934240622
Adjusted R Square	0.91232083
Standard Error	3.330266298
Observations	17

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	1890.776622	472.6941556	42.62086975	5.34131E-07
Residual	12	133.0880834	11.09067362		
Total	16	2023.864706			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-11.37452455	5.304831373	-2.144182114	0.053192745	-22.93275901	0.183709908	-22.93275901	0.183709908
X Variable 1	-0.031469721	0.046495356	-0.676835791	0.51134677	-0.132774398	0.069834956	-0.132774398	0.069834956
X Variable 2	-0.013577	0.014820573	0.91610036	0.377656954	-0.018714121	0.045868385	-0.018714121	0.045868385
X Variable 3	-0.28551	0.048989534	5.827838872	8.11311E-05	0.178764087	0.392242132	0.178764087	0.392242132
X Variable 4	0.009697	0.001677388	5.781021661	8.72854E-05	0.006042303	0.013351734	0.006042303	0.013351734

MULTIPLE REGRESSION PRODUCTION

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.952506779
R Square	0.907269163
Adjusted R Square	0.873548859
Standard Error	34439.1425
Observations	16

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	1.27647E+11	31911654718	26.90572292	1.25072E-05
Residual	11	13046599898	1186054536		
Total	15	1.40693E+11			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-100537.6386	65825.87815	-1.527326964	0.154908385	-245419.4929	44344.21559	-245419.4929	44344.21559
X Variable 1	-214.4412682	481.321475	-0.445526076	0.664580604	-1273.823228	844.9406913	-1273.823228	844.9406913
X Variable 2	-238.1923629	208.8866066	-1.140295047	0.278383226	-697.9489167	221.5641908	-697.9489167	221.5641908
X Variable 3	-117.2309591	555.5859113	2.106316174	0.05895193	-52.5973732	2393.076556	-52.5973732	2393.076556
X Variable 4	131.3118119	17.46536341	7.518412804	1.17285E-05	92.87078676	169.752837	92.87078676	169.752837